

Application No. 09/994,455
Inventor: Kazuyoshi Hiraiwa

REMARKS

Applicant would like to thank the EXAMINER for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action, and climes 1-3, and 5 thereof are rejected under 35 U.S.C. 102 (d) being barred by applicant's Japanese Patent No. 2001010361A, which is made as FINAL REJECTION.

The EXAMINER pointed out that "Claims 1-3, and 5 thereof are rejected under 35 U.S.C. 102 (d) being barred by applicant's Japanese Patent No. 2001010361A. Applicant's present invention was filed in the U.S. on November 28, 2001. Said Japanese Patent was filed in Japan on June 29, 1999 (more than 12 months prior to the date of application in the U.S.) and was patented in Japan on January 16, 2001 (prior to the date of the application in the U.S.).

There is, however, misunderstanding in the latter part (underlined part described above) of the above reason for this final rejection. The Japanese Patent No. 2001010361A is not first patented, nor caused to be patented. It is only opened automatically under Japanese Patent Law in the state of being not examined by an examiner.

In Japanese Patent System, all applications are automatically opened 18 months after their filling dates by the Japanese Patent Office, and these applications are not examined automatically by an examiner. When applicants want to put their applications to be examined, they must file "Request of Examination" to the Japanese Patent Office by the predetermined date from their filling date (In this application, 7 years from the filing date---In applications filed after Oct. 1, 2001, 3 years by legal change). If the applicants fail too file it by the due date, the applications are assumed to abandoned ones.

We even have not filed its request of examination of the above Japanese application to J.P.O., which means that it is not decided whether

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the application is patented or rejected. (Another our Japanese Patent Application No. 2000-326739A cited by the Examiner is not examined either.)

Therefore, this application lacks an element ("the invention was first patented or caused to be patented, or was the subject of an inventor's certificate") of 35 U.S.C. 102 (d).

The invention differs from the transmission of Schmidt cited by the Examiner at the first rejection.

The difference will be described again below:

The inner gear member (36) in the transmission of Schmidt is always connected to the second motor/generator (90) through a transfer gear member (70), a first connecting gear member (72), and a drive gear (102) and connected to the output shaft (52) at a low-speed ratio, while in the present invention the sun gear (32) of the second planetary gear set (30) in FIGS. 1 to 4, corresponding to the second rotatable member, is connected to the output shaft (14) and free from the second electric motor/generator (54) at a low-speed ratio.

This difference at the low-speed ratio brings in that the powertrain according to the present invention can obtain torque on the output shaft larger than Schmidt to drive medium- and heavy- duty vehicles such as trucks and commercial vehicles at the low speed ratio.

The reason is as follows: The planetary gear sets divide engine torque inputted to them according to a torque splitting ratio shown in a table below. This shows that the output-shaft driving torque ratio is larger in the powertrain of the invention than Schmidt. Therefore, driving torque from the engine through the planetary gear sets drives mechanically the output shaft larger in the powertrain of the invention than Schmidt.

POWERTRAIN	Electricity-generating torque ratio	output-shaft driving torque ratio
Schmidt	$(\alpha 1/\alpha 2)/(1+\alpha 1+\alpha 1/\alpha 2)$	$(1+\alpha 1)/(1+\alpha 1+\alpha 1/\alpha 2)$

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The present invention	$-\alpha 1$	$1+\alpha 1$
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where $\alpha 1$ is a teeth-number ratio of the first sun gear to the first ring gear of the first planetary gear (sub-)set, and $\alpha 2$ is a teeth-number ratio of the second sun gear to the second ring gear of the second planetary gear (sub-)set.